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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,696	06/27/2003	Gerhard Beckmann	107044-0036	7715
24267	7590	10/11/2006	EXAMINER	
CESARI AND MCKENNA, LLP			CHUO, TONY SHENG HSIANG	
88 BLACK FALCON AVENUE			ART UNIT	
BOSTON, MA 02210			PAPER NUMBER	

1745

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/607,696		BECKMANN ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Tony Chuo		1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 2-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Claims 1-10 are currently pending. Claims 2-6 stand withdrawn from further consideration as being drawn to a non-elected species of Group I. Claims 1 and 7-10 do not overcome the previously stated 103 rejections. Therefore, claims 1 and 7-10 stand rejected under the following 103 rejections.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bostaph et al (US 2002/0076589) in view of Barber (US 6443717). Regarding claim 1, the Bostaph reference teaches a direct oxidation fuel cell "27", an anode chamber "24", and a cathode chamber "28" (See Figure 2). However, the reference does not expressly teach a fluid controlling assembly comprising an adjustable component at least a portion of is disposed within the cathode chamber and when adjusted, regulates the rate at which fluids travel into and out of the cathode chamber. The Barber reference does teach a mechanism for minutely adjusting the air flow into the cathode chamber of the fuel cell comprising an adjustable component "10" that regulates the rate at which oxygen flows into and out of the cathode chamber of the

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fuel cell (See Figure 1-3 and column 3, lines 26-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bostaph fuel cell to include the adjustable component in the cathode chamber so that minute adjustments to the air system can be made to compensate for undesirable changes in the efficiency of the fluid supply apparatus.

Regarding claims 7 and 8, the Bostaph reference teach a direct oxidation fuel cell "27", an anode chamber "24", and a cathode chamber "28" (See Figure 2). However, the reference does not expressly teach a fluid controlling assembly comprising a first component that includes an aperture in the cathode chamber, a corresponding second component such that placement of the first component relative to the second component results in either permitting the flow of fluids into the cathode chamber when open or restricting the flow of fluids when closed. The Barber reference does teach a mechanism for controlling mass flow in fuel cell systems comprising a first component represented by the stationary cylinder head "9" that includes fixed openings and a corresponding second component represented by the rotating disc "10" such that the placement of the first component relative to the second component either permits the flow of oxygen into the cathode chamber when open or restricts the flow of oxygen when closed. In addition, the first and second components are generally planar components that include corresponding apertures which when aligned create openings and can be adjusted relative to one another to control the rate of fluid flow through the openings (See Figure 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bostaph fuel cell to include a first and second planar components that either permits the flow of oxygen

when open or restricts the flow of oxygen when closed into the cathode chamber so that minute adjustments to the air system can be made to compensate for undesirable changes in the efficiency of the fluid supply apparatus.

Regarding claim 10, the Bostaph reference in view of the Barber reference is applied to claims 7 and 8 for reasons stated above. However, the Bostaph reference does not expressly teach a control system for variably actuating the position of at least one of the first and second components of the fluid controlling assembly. The Barber reference does teach a control system "711" for variably actuating the position of the rotating disc "10" of the fluid controlling assembly (See Figure 3 and 7, column 7, lines 40-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bostaph fuel cell to include a control system in order to maintain stringent power output requirements for vehicular applications.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bostaph et al (US 2002/0076589) in view of Barber (US 6443717) as applied to claims 1, 7, 8, and 10 above and further in view of Reynolds et al (US 5985475). However, the references do not expressly teach first and second components lined with a gas permeable, liquid impermeable film that controls the rate of flow of oxygen therethrough to control the cathode reactions, yet restricts the flow of liquid water therethrough such that humidity is maintained within the cathode chamber. The Reynolds reference does teach a gas permeable, liquid impermeable membrane that controls the flow rate of oxygen into the cathode. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Bostaph/Barber fuel cell to include first and second components that are lined with a gas permeable, liquid

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impermeable membrane that controls the rate of flow of oxygen therethrough to control the cathode reactions, yet restricts the flow of liquid water therethrough in order to effectively maintain the humidity within the fuel cell and prevent the electrolyte membrane from drying out.

### ***Response to Arguments***

5. Applicant's arguments filed 7/28/06 have been fully considered but they are not persuasive.

The applicant argues that claims 2-6 were not withdrawn. The applicant's reply dated January 3, 2006 clearly states that species ii (assembly with apertures) is elected which is set forth in independent claim 7 and dependent claims 8-10. Therefore, claims 2-6 stands withdrawn from further consideration as being drawn to a non-elected species of Group I.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The applicant argues that Bostaph does not suggest an adjustable component at least a portion of which is disposed within the cathode chamber. The examiner notes that the Bostaph reference is a base reference in a 103 rejection. Therefore, it does not need to teach an adjustable component at least a portion of which is disposed within the cathode chamber.

The applicant argues that Barber does not disclose using an adjustable component to regulate fluids into and out of the cathode. Barber '717 teaches using a variable timing valves to control the mass flow of oxygen and hydrogen to the fuel cell. Since oxygen is supplied to the cathode of the fuel cell, the variable timing valve would regulate the fluids into and out of the cathode. The examiner notes that by definition a fluid can be a liquid or a gas. It is further noted that most air supplies to a fuel cell system include some degree of humidity.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the references is in the Barber '717 because it teaches controlling the mass flow of oxygen and hydrogen in order to control the power output of the fuel cell stack due to the stringent requirements of the power consumer.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Trainer Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

*Susy Tsang-Foster*  
**SUSYTSANG-FOSTER**  
**PRIMARY EXAMINER**